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Integrating Care: The Primary Care Provider’s Role in Age-Related Macular Degeneration in Eastern Maine

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Disclosure

- The authors of this presentation report no financial conflicts of interest
- Drugs and nutritional supplements are mentioned in this presentation
Problem Identification and Description of Need

- Age-related macular degeneration (AMD) is the leading cause of severe, irreversible vision loss in the developed world\(^1\)
- Low vision is socially isolating, decreases functioning and quality of life. It is associated with significant comorbidities including falls and depression\(^{15}\)
- In 2004, 1.75M Americans have severe AMD in at least one eye, and another 7.3M with high-risk features. This number is estimated to increase to 3 million by 2020\(^1\)
- Risk Factors: Age,\(^3\) Caucasian race,\(^2\) smoking,\(^5\) genetic factors, family history\(^6\)
- Prevalence increases with age, from 4.2% in persons age 43-54 to 46% in persons age 75 or older\(^3\)
  - In Maine, 95% white, 38.7% age 50 and older\(^4\)
  - In Penobscot County, 16.5% age 65 and older. This percentage is increasing\(^4\)
- The Age-related Eye Disease Studies (AREDS) estimated that of the 8 million individuals considered high risk for the development of advanced stage AMD in 2003, 300 thousand would have avoided progression to advanced stage disease and any subsequent vision loss (over a period of 5 years) had they received preventative AREDS nutritional supplementation\(^8\)
Problem Identification and Description of Need

- USPSTF currently has insufficient information to recommend routine screening for AMD based on visual acuity alone (Grade I recommendation).
- AAO Preferred Practice Patterns recommends yearly fundus exams and patient self-monocular visual acuity and Amsler grid exams in individuals with early stage disease or positive family history\(^\text{13}\).
- The AREDS and AREDS2 trials demonstrated a 10% - 30% reduction in progression to advanced disease in individuals with intermediate AMD (one or more drusen $>125\mu m$) supplemented with antioxidants and carotenoids\(^\text{11,12}\).
- Fundus examination is non-invasive and represents minimal risk to the patient.
- Taken together, targeted questions, cursory fundus exam and Amsler grid testing now meets the criteria for a good screening test.
Public health costs

- **Cost to Patient**
  - $2,700/QALY* for monthly Bevacizumab
  - $63,000/QALY for monthly Ranibizumab
  - $14,000/QALY for implantable miniature telescope
  - Compare to $60 - $120 for AREDS nutritional supplements (1 year supply)

- **Cost to Medical System**
  - $574 million in direct medical costs in 2004
  - Wholesale prices of anti-VEGF intravitreal injections $50-$1950 per dose

*Quality adjusted life-year
Community perspective and support for project

“AMD is a disease with insidious onset and can be unilateral... so patients may not notice a change in vision until the disease is in the more advanced stages. The most important things [PCPs] can do is identify and assess patients with risk factors, and make timely referrals.”

- M.J., M.D., local ophthalmologist*

“Not everyone receives routine eye exams because [vision insurance] is often not covered by employers. Most of us ask about vision changes as part of the review of systems, but I don’t think specific screening questions and fundus exams are a big enough part of what we’re doing. It would be interesting to gauge residents’ exposure to and proficiency with the fundus exam.”

- Jessica Bloom-Foster, M.D., Center for Family Medicine Preceptor

“I live half an hour from the clinic. I’ve never needed glasses so I have no reason to see an eye doctor. I only see the [PCP] when I’m sick. A couple of my friends have AMD that were caught when it was already bad, and the thought of going blind is real scary.”

- Margaret Gauthier, Center for Family Medicine patient

*Interviewee consented to interview but declined publication of identifying information. Names are on file in the University of Vermont College of Medicine Family Medicine Department.
In a 2009 prospective longitudinal study, 98% of 2nd year medical students reported self-rated competency in optic disc visualization. However, expert audits of 3rd and 4th year student charts demonstrated that 43% of post-family medicine and 91% of post-internal medicine workups reflected inadequate eye evaluations. The authors concluded that skills performance decayed when not habitually practiced. These results can almost certainly be extrapolated to primary care residency training and beyond.

- **Patient**
  - Assess patient knowledge of AMD risk factors, early signs and symptoms, and care management using a 14 point questionnaire
  - Questionnaire distributed at check-in by front office staff to all adult (18+) patients at CFM
  - Education with a brief, informative, looping slideshow in the waiting room highlighting the epidemiology, risks, and symptoms of AMD
  - Creation of an informative flyer for each examination room highlighting the epidemiology, risks, and symptoms of AMD

- **Primary Care Provider**
  - Assess provider knowledge of AMD risk factors, early signs and symptoms, and care management using a 10 point questionnaire
  - SurveyMonkey distributed to CFM providers and three regional primary care practices
  - Assess provider comfort with fundus examination and Amsler grid testing
  - Formation of an informative flyer for each examination room highlighting the epidemiology, risks, and symptoms of AMD, and care management steps
Results – patient (n=46)

Did you know...?

- AMD most commonly affects the elderly
- Advanced AMD can be prevented or slowed if detected early
- AMD can run in the family
- Smokers are at higher risk for AMD
- AMD most commonly affects white individuals
- Vision loss from AMD begins in the center of vision
- AMD is leading cause of irreversible central blindness in the US

Percent of responses

Do you...?

- Know what AMD is
- Know what treatment options are available for AMD
- Wish you knew more about AMD
- Currently have AMD in one or both eyes
- Have a family member with or who had AMD
- Know what AMD is

Percent of responses

Please rate your knowledge of early signs and symptoms of AMD

- None: 36%
- Poor: 14%
- Wish I knew more: 32%
- Adequate: 18%
- Expert: 2%

Please rate your knowledge of risk factors for developing AMD

- None: 34%
- Poor: 16%
- Wish I knew more: 32%
- Adequate: 18%
- Expert: 2%
Results – primary care providers (n=23)

Please check one:

- I routinely ask patients about vision at well visits
- I can confidently perform the fundus exam and identify drusen
- I can confidently perform and interpret the Amsler grid test
- I can counsel patients on visual aids and low-vision behavioral modifications

Please rate your knowledge of:

- AMD risk factors
- Early signs and symptoms of AMD
- Guidelines for referral to ophthalmology for AMD
- AMD treatment options and adverse effects
- Low-vision rehab services and resources
- Low-vision community support resources
Evaluation of effectiveness and limitations

- Only 18% of patients reported adequate or expert knowledge of early signs and symptoms. 50% reported poor to no knowledge.

- Similarly, 18% of patients reported adequate knowledge of risk factors. 50% reported poor to no knowledge.

- 64% of patients did not know what AMD was, but 74% wish they knew more about the disease.

- Patients with AMD in one or both eyes, or who have family members with AMD, were more likely to be knowledgeable of signs, symptoms and risk factors.

- This data suggests that knowledge of AMD risk factors, signs and symptoms are lacking in the general adult population. However, the vast majority desire to know more

- The findings suggest a need and desire for timely education and risk identification by primary care providers.

- Although not directly shown by our data, it is reasonable to infer that patients lack adequate knowledge of the disease until they are diagnosed with AMD. An association may be revealed if the survey were extended to capture more patients with and without the diagnosis.

- Organization and order of survey questions may have inadvertently tipped patients and altered responses with respect to knowledge level.

- We propose to evaluate the effectiveness of interventions by readministering questionnaire to same patients after they have reviewed the handout.
Evaluation of effectiveness and limitations

- 70% of providers routinely ask about visits at Well-visits. However, 43% of providers somewhat or completely disagree that they can comfortably perform a fundus exam.
- 52% of providers somewhat or completely disagree that they can comfortably perform and interpret the Amsler grid test.
- Approximately 40% of providers wish they knew more about the risk factors for AMD, while only 34% considered themselves to have adequate or expert knowledge of the risk factors.
- 43% of providers wish they knew more of early signs and symptoms of AMD, while 53% considered themselves adequate or expert.
- 39% of providers had poor to no knowledge of the available low-vision rehab services, and 43% had poor to no knowledge of the available low-vision community support resources.

While 70% of providers report routinely asking about vision during well-visits, depth of questioning and line of questioning looking specifically for AMD is unclear.

The PCP survey was announced and residents and faculty were asked to participate during a clinic team huddle. While clearly stated that responses were confidential and used for internal analysis only, a significant Hawthorne effect/observation bias may exist.

We propose to evaluate the effectiveness of interventions by readministering questionnaires after review of PCP care management handout.

Further evaluate with formal assessment of interviewing and physical exam skills, and professional chart audits.
Recommendations for future interventions and projects

For at-risk patients, PCPs play a crucial role in recognizing functional and anatomic symptoms, issuing timely referrals, and overseeing risk factor modification. In patients with uncorrectable vision loss, the PCP’s role shifts to optimizing quality of life and facilitating low-vision rehabilitation.15

- Creation of an automated page in the EMR for the guidance of primary care provider screening questions
- It is not uncommon for people with even severe monocular vision loss to be unaware of their condition if they have good vision in the fellow eye - simply asking “Any changes in vision?” may not be enough. Ask all adult smokers and/or those with a family history specific vision questions (Table 1)
- Educate all adult smokers and/or those with a family history of AMD about the early signs and symptoms of AMD
- Larger trials could provide more insight into patient and provider knowledge of AMD that encompasses a more diverse population
- We recommend formal workshops that encompass funduscopic examination, referral guidelines, treatment options, and follow-up for AMD to all primary care providers using a reiterative training model

<table>
<thead>
<tr>
<th>Table 1.15</th>
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<tbody>
<tr>
<td>How did you see 10 years ago?</td>
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<tr>
<td>How is your reading?</td>
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<tr>
<td>What can’t you do now that you were previously able to?</td>
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<tr>
<td>Have you noticed that straight lines have become distorted or wavy?</td>
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<tr>
<td>Have you noticed any dark areas, blurry areas, or whiteout?</td>
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<tr>
<td>When did you first notice changes in your vision?</td>
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<td>How has your vision changed in the last 3 months?</td>
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References

References


